PROJECT NUMBER: 1730
PROJECT TITLE: Plant, Cell & Tissue Culture Research
PROJECT LEADER: I. L. Uydess
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PERIOD COVERED: June, 1988

I. TOBACCO-IDENTICAL PRESERVATIVES

A. **Objective**: To develop procedures and to establish microbiological screens for the evaluation of new, nature-identical preservatives as replacements for and/or as adjuncts to propylparaben.

B. **Status**:

1. **Phase I Preservative Screens**

The screening of a set of C-5 through C-14 Fatty Acids has been completed. Maximum antimicrobial activity was observed at 100 µg/ml for C-10 thru C-12 containing acids. Combinations of Decanoic Acid (C-10) and Propylparaben (in PG) were also evaluated at ratios of 3:1, 1:1, and 1:3 (Propylparaben : Decanoic Acid) to yield a final (total) concentration of 100 µg/ml. All combinations were found to be inhibitory to the growth of the target bacterium PM #13 (tentatively identified as B. coagulans) for up to 24 hours. This was a significant finding since the 3:1 → 3:1 ratio was not initially expected to be inhibitory to the microorganism used.

2. **Microbiological Investigations**

The development of a Phase II standard operating procedure continued during this month using a bacterium obtained from spoiling SEL. Growth curves were evaluated of fresh and refrigerated cultures of this gram positive isolate (#54) to establish the reliability and reproducibility of the procedures used.

C. **Conclusions**: None to be reported at this time.

D. **Plans**: (July 1988)

1. To conduct Phase I screens using various mixtures of C-9 through C-12 Fatty Acids.

2. To evaluate the antimicrobial activity of the Fatty Acids in SEL.